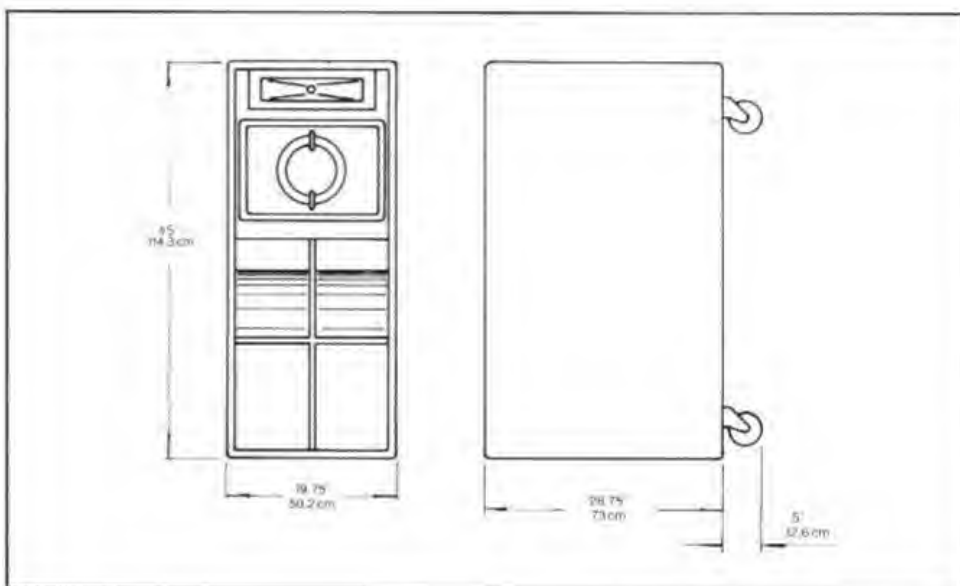


TMS-4



The TMS-4 is a bi-amped 3-way line array loudspeaker enclosure. Its LF capabilities and transient response make it particularly capable at projecting high SPL levels with considerable impact in a variety of professional applications.

It is particularly suited to live sound reinforcement, concert halls and top-level discotheque installations.

The heart of this system is the TurboMid™ device. This uses a unique design, covered worldwide by Principle Patents, which allows it to be used over four octaves (250Hz to 4,000Hz) – a system designer's dream.

Due to the geometry of the inner workings of the device, the overall directivity response is much higher than a "normal" horn of the same frontal area. This is a very powerful characteristic, as it allows for highly non-interactive arraying in multiple unit systems (see Figs. 1-4).

In all TMS Series enclosures, the TurboMid device is combined with a

TurboBass™ device, also covered by Principle Patents. The design uses high-velocity partial horn-loading techniques, giving greatly enhanced cone control and providing remarkable levels of bass projection from such a compact enclosure (see Fig. 5).

All TMS Series enclosures are easy to fly; thus, an installed TMS-4 system will be unobtrusive and will obstruct sightlines less than conventional multi-way or larger full-range enclosures.

These unique developments in audio design have enabled Turbosound engineers to construct a system which produces very low distortion (see Fig. 7) and a naturally correct acoustic output without the need for less reliable, artificial compensating electronics. The result is a natural, transparent sound quality from an unusually compact enclosure, that is easier to work with than competitive designs.

For further general information, please refer to the TMS-4 Sales Data Sheet and TMS Series catalogue.

 **Turbosound®**

BEAMWIDTH (Single Unit)

Fig. 1

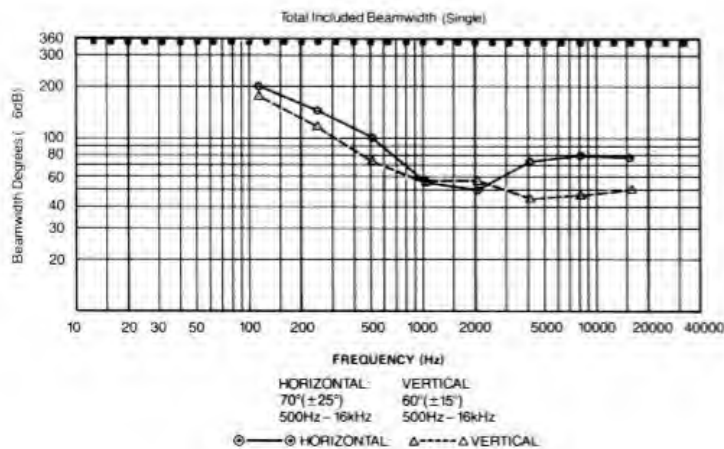
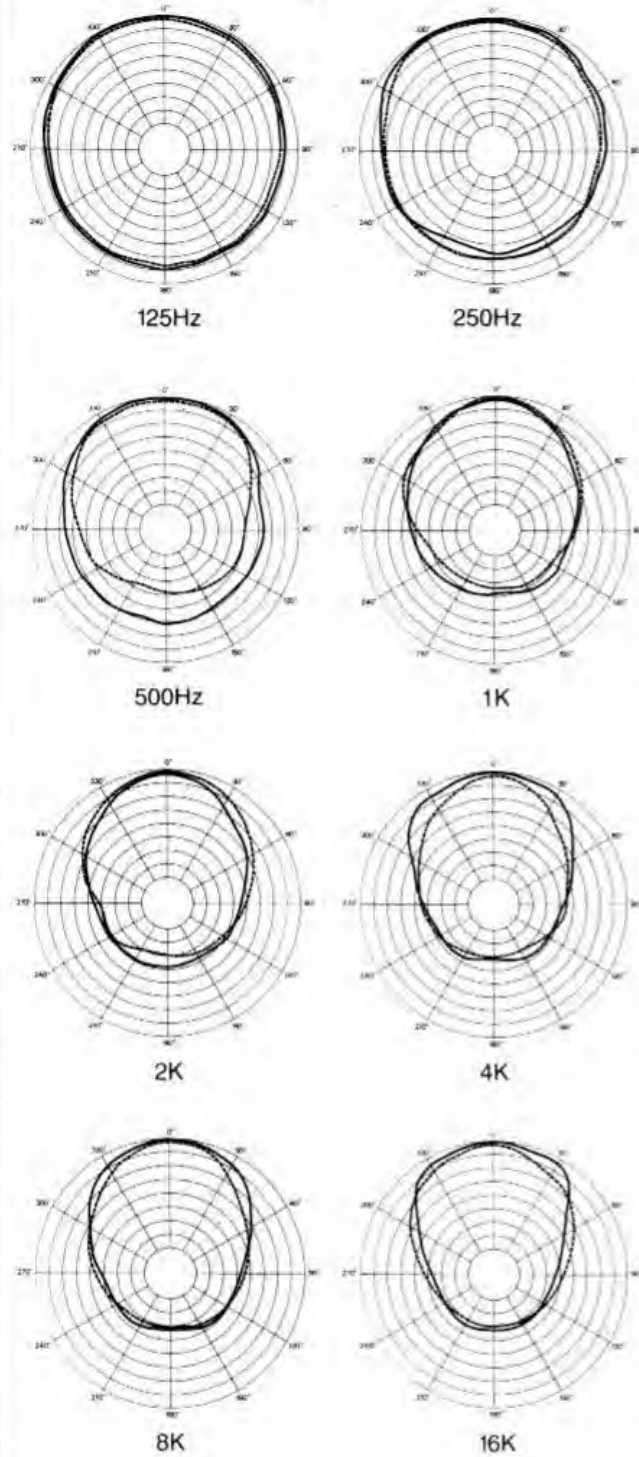


Fig. 2

BEAMWIDTH (Two Units Splayed)

Fig. 3

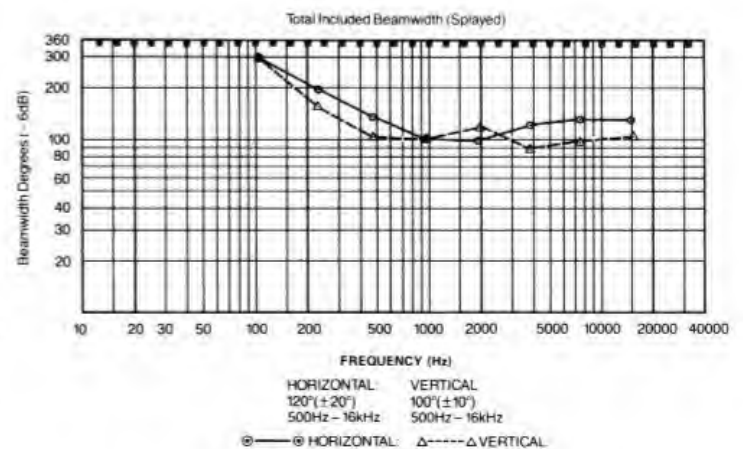
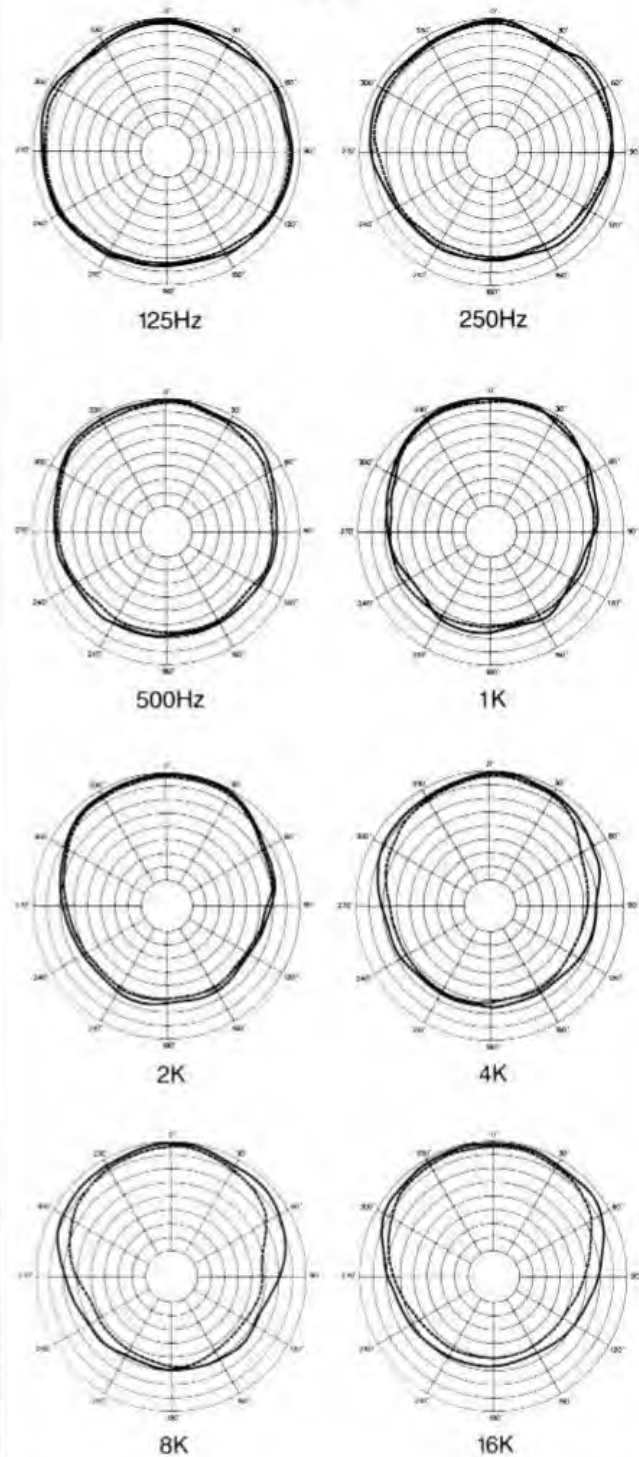


Fig. 4

SPECIFICATIONS

Dimensions	45"H × 19¾"W × 28¾"D (114.3cm × 50.2cm × 73.0cm)	finished in Trimite semi-matt TurboBlue ⁵ paint	
Weight	165 lbs. (75 kg.)	Protective grille	1" 30 PPI fully reticulated foam
Components:		Connectors	3 pin XLR; 2 male, 2 female
Bass	1 18" LF driver on a TurboBass™ device; 300 watts RMS, 600 watts Program; 8 ohms	Flying	Optional ring-type flying points
Mid/High	1 10" MF driver on a TurboMid™ device 1 1" HF driver on a proprietary flare; 150 watts RMS, 300 watts Program; 16 ohms	Hardware	HF attenuator 4 recessed handles Optional heavy duty cover
Frequency response ¹	45 – 17000 Hz ± 3dB 40 – 18,000 Hz +3/-6dB	Transport	4 heavy duty 3" swivel castors fitted to back
Phase response	Coherent over stated bandwidth	Please Note	No tools required for any part of TMS-4 operation.
Dispersion ²	70°H × 60°V at – 6dB points	<p>All measurements are actual figures taken from real-time testing using stated inputs, free from any filtering or weighting, rather than treated inputs and/or calculated figures used by many manufacturers. Therefore, actual performance of the TMS-4 may substantially exceed that of loudspeaker systems with higher published ratings.</p> <p>Notes ¹ Measured on-axis, half-space conditions, using swept sine wave input ² Average over stated bandwidth ³ Mean average of two bands, each measured 1 watt/1 meter, half-space conditions, using swept sine wave input ⁴ Continuous measurement: Unweighted pink noise input Peak measurement: Music program input Both measured at 1 meter, using stated amplifier power ⁵ Optional black</p>	
Power handling	450 watts RMS, 900 watts Program		
Sensitivity ³	105dB 1 watt/1 meter (Average); 108dB 1 watt/1 meter (Peak)		
Maximum SPL ⁴	126dB (Continuous); 135dB (Peak)		
Crossover	Bi-amped; recommended point 250Hz, 24dB/octave slope		
Construction	15mm Finnish birch ply, rabbeted, sealed with marine glue, and		

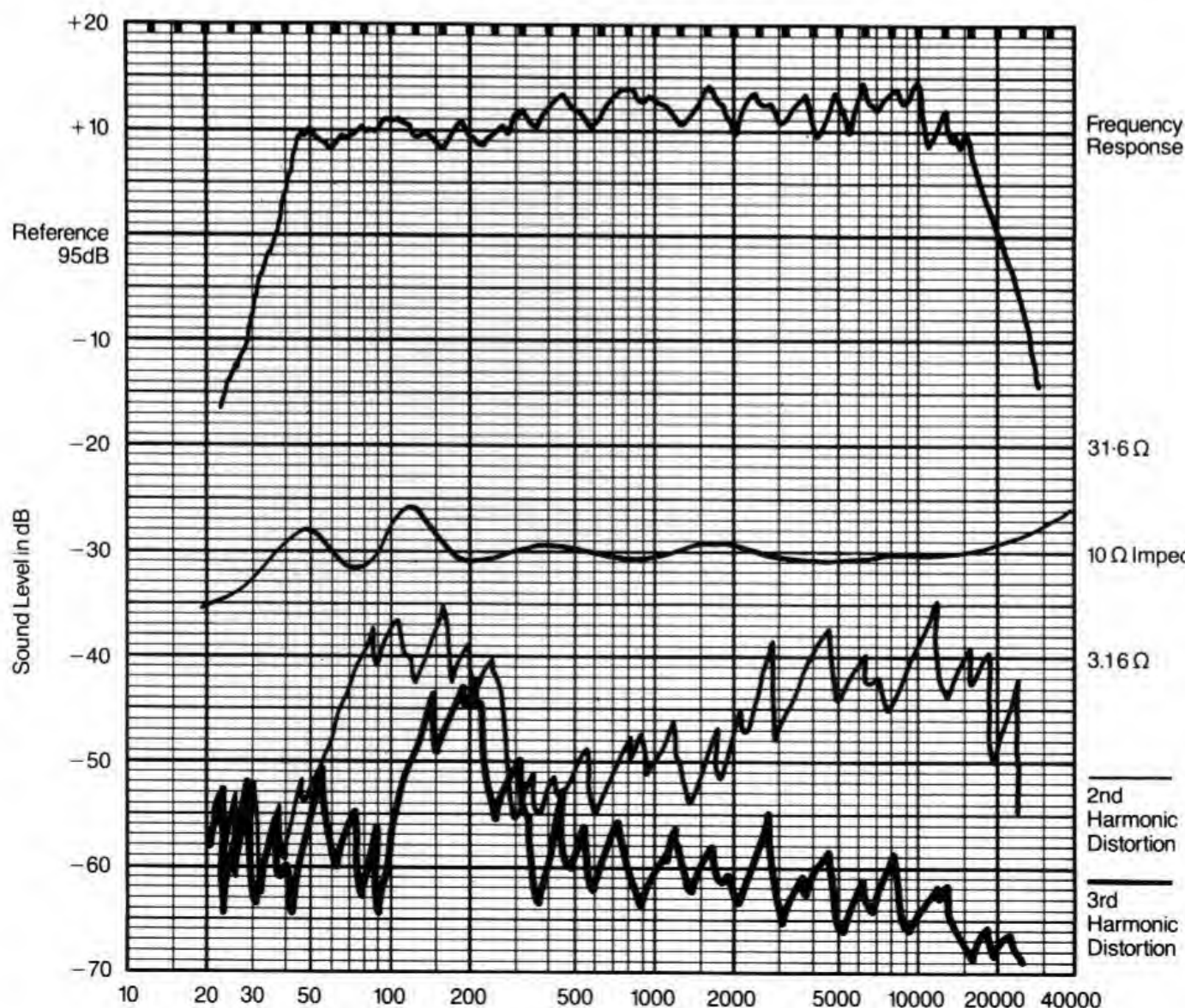


Fig. 5

Fig. 6

Fig. 7

FREQUENCY RESPONSE

The frequency response shown in Figure 5 was obtained by feeding a swept sine wave through the system in a large anechoic chamber. The position of the microphone was horizontally on-axis, vertically in-line with the MF/HF section, and at a distance of one meter.

IMPEDANCE

A common method constant current drive circuit was used to measure the impedance response, shown in Fig. 6.

2ND AND 3RD HARMONIC DISTORTION

Distortion measurements shown in Fig. 7 were obtained using a Bruel and Kjaer harmonic distortion analysis system.

POLAR RESPONSE

The directional characteristics of the TMS-4 were measured by running a set of horizontal and vertical polar responses, in a large anechoic chamber, at each octave centre frequency. The test signal was octave pseudo-random pink noise (1.0Hz repetition rate) entered at the indicated frequencies. The measurement microphone was placed 6.1 meters (20ft) from the enclosure, while rotation was about the MF/HF section. The polar plots shown in Figs. 1 & 3 display the results of these tests. The centre frequency and beamwidth angle are noted on each plot. Horizontal beamwidth is represented by a solid line (—), and the vertical beamwidth by a dotted line (---).

BEAMWIDTH

A plot of the TMS-4's total included beamwidth angle is shown in Fig. 2 for each octave centre frequency. The horizontal beamwidth is maintained at $70^\circ (\pm 25^\circ)$ over the range 500Hz to 16,000Hz. Vertical beamwidth is maintained at $60^\circ (\pm 15^\circ)$ over the same range.

Fig. 4 shows a plot of the total included beamwidth angle for two cabinets, splayed at an angle of 30° horizontally and 25° vertically, for each octave centre frequency. The horizontal beamwidth, measured at these splay angles, is maintained at $120^\circ (\pm 20^\circ)$ over the range 500Hz to 16,000Hz. Vertical beamwidth is maintained at $100^\circ (\pm 10^\circ)$ over the same range.

ARCHITECTURAL AND ENGINEERING SPECIFICATIONS

The loudspeaker system shall be of the bi-amped, three-way type, consisting of one 18" low frequency loudspeaker loaded with a patented TurboBass™ device, one 10" mid frequency driver loaded with a patented TurboMid™ device, and one 1" high frequency unit.

Performance specifications of a typical production unit shall meet or exceed the following: Frequency response, measured with swept sine wave input, shall be flat within ± 3 dB from 45 – 17,000 Hz. Dispersion, at -6 dB points, shall average $70^\circ \text{H} \times 60^\circ \text{V}$. rated Impedances shall be: Bass 8 ohms, Mid/High 16 ohms. Power handling shall be 450 watts RMS, 900 watts Program. Sensitivity, measured with 1 watt input at 1 meter distance on-axis, mean averaged over the stated bandwidth, shall be 105dB. Maximum SPL (Peak), measured with music program input at stated amplifier power, shall be 135dB.

Dimensions: $45'' \text{H} \times 19\frac{3}{4}'' \text{W} \times 28\frac{1}{4}'' \text{D}$. Weight: 165 lbs. Total enclosure volume shall not exceed $14\frac{3}{4}$ cu.ft.

The loudspeaker system shall be the Turbosound TMS-4.

No other loudspeaker system shall be acceptable unless submitted data from an independent test laboratory verify that the above combined performance/size specifications are met.



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TURBOSOUND®
PATENT INFORMATION
U.K. 1,592,246 & 1,598,310
U.S. 4,181,193 & 4,215,761
Canada patented 1980
Australia 515,535
Other patents pending

Due to ongoing product improvement,
specifications are subject to change
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